

# Gonorrhea/Chlamydia Co-Infection

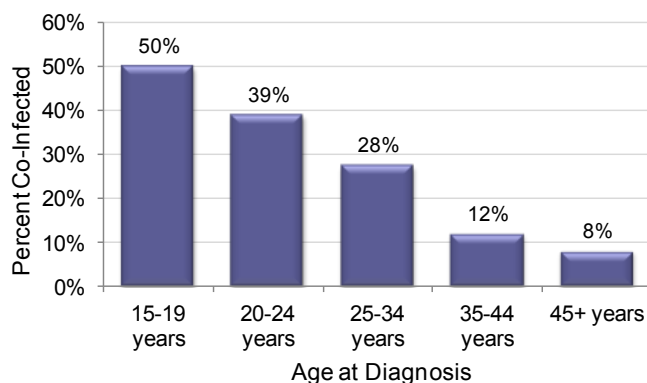
## Overview of the Data

As part of the STD Surveillance Network (SSuN) project, staff at the Virginia Department of Health (VDH) collected enhanced surveillance data for all reported infections of *Neisseria gonorrhoeae* (i.e. gonorrhea) in the Richmond area from 2010-2012. This included 3,560 cases of gonorrhea residing in the localities of Richmond City, Chesterfield County, and Henrico County. In addition to information on gonorrhea symptoms and treatment, data on chlamydia co-infection and patient demographics and behaviors were also collected as part of SSuN activities.

## Chlamydia Co-Infection

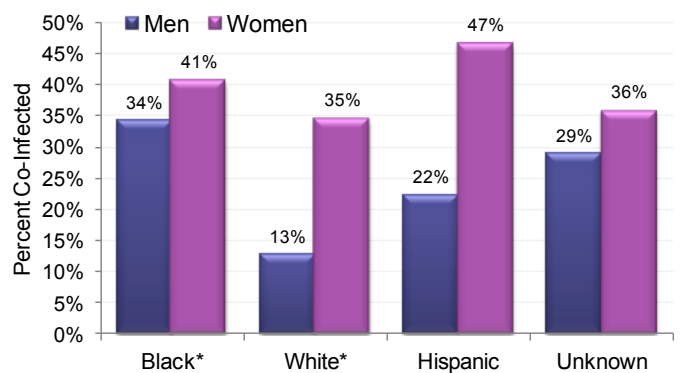
Patients diagnosed with gonorrhea are often co-infected with chlamydia. That is, at the time they visited a medical facility and were diagnosed with gonorrhea, they also tested positive for chlamydia infection. Previous studies have estimated that approximately 40-50% of all gonorrhea-positive adolescents and young adults attending facilities such as STD clinics, family planning clinics, and juvenile detention centers, were co-infected with chlamydia.<sup>1-2</sup> Being infected with one sexually transmitted disease, such as gonorrhea, also increases the likelihood that patients will be diagnosed with other STDs such as HIV.

Figure 1. Chlamydia Co-Infection by Age Group



1. Dicker *et al.* Gonorrhea prevalence and coinfection with chlamydia in women in the United States, 2000. *Sex Transm Dis* 2003; 30(5):572-576.
2. Kahn *et al.* Chlamydia trachomatis and *Neisseria gonorrhoeae* prevalence and coinfection in adolescents entering selected US juvenile detention centers, 1997-2002. *Sex Transm Dis* 2005;32(4):255-259.

Figure 2. Chlamydia Co-Infection by Race/Ethnicity<sup>†</sup>



<sup>†</sup> Co-infection refers to patients diagnosed with gonorrhea who were also infected with chlamydia at the same time. Patients of races/ethnicities other than those shown above were excluded due to small numbers (N = 40).

\* Non-Hispanic

## Co-Infection in the Richmond Area

Of the 3,560 cases of gonorrhea diagnosed in the Richmond area from 2010-2012, 36% were co-infected with chlamydia at the time of their diagnosis. This proportion remained relatively stable across the three years, ranging from 31-43% each quarter.

## Co-Infection by Patient Demographics

Co-infection with chlamydia was most prevalent among younger age groups diagnosed with gonorrhea. The co-infection rate was 50% among 10-14 year olds, and decreased steadily with increasing age of diagnosis to only 8% among those aged 45 or older (Figure 1).

Co-infection rates were highest among black (38%) and Hispanic (35%) gonorrhea cases, and lower among white (24%) cases. Women overall were more likely to be co-infected than were men (40% vs. 32%). Co-infection with chlamydia was most common among Hispanic and black women: 47% and 41% were co-infected respectively (Figure 2).

Similar rates of chlamydia co-infection were observed among women and men who have sex with women (MSW) diagnosed with gonorrhea (37-40%), while gonorrhea-positive men who have sex with men (MSM), had notably lower rates of co-infection (11%).

## Co-Infection by Risk Behaviors

Engagement in various behaviors associated with increased risk of acquiring a sexually transmitted disease were also associated with increased likelihood of co-infection with chlamydia. For example, condom use at last sex was associated with a slightly lower rate of co-infection with chlamydia (33%) compared to those who did not use a condom at last sex (37%). The co-infection rate among cases who reported any illicit drug use (including marijuana) in the past year was 38% compared to 35% for non-users.

Gonorrhea-positive women who reported having 3 or more sex partners in the previous 3 months had a chlamydia co-infection rate of 53%, significantly higher than the rate of 38% observed among women who reported 1-2 partners. Interestingly, no difference was noted among men, who had a 29-30% chlamydia co-infection rate regardless of their number of recent sex partners.

## Co-Infection by Provider Type

There was also notable variation in co-infection rates among gonorrhea cases diagnosed by different types of providers or medical facilities (Figure 3). Women attending public STD clinics or family planning clinics were most likely to be co-infected with chlamydia (46% and 44% respectively). Similarly, 38% of men diagnosed with gonorrhea at STD clinics were co-infected with

### What is SSuN? A Quick Overview

The STD Surveillance Network (SSuN) is an enhanced surveillance project sponsored by the Centers for Disease Control and Prevention (CDC). The purpose of SSuN is to fill critical gaps in national surveillance and improve the capacity of national, state, and local sexually transmitted disease (STD) programs.

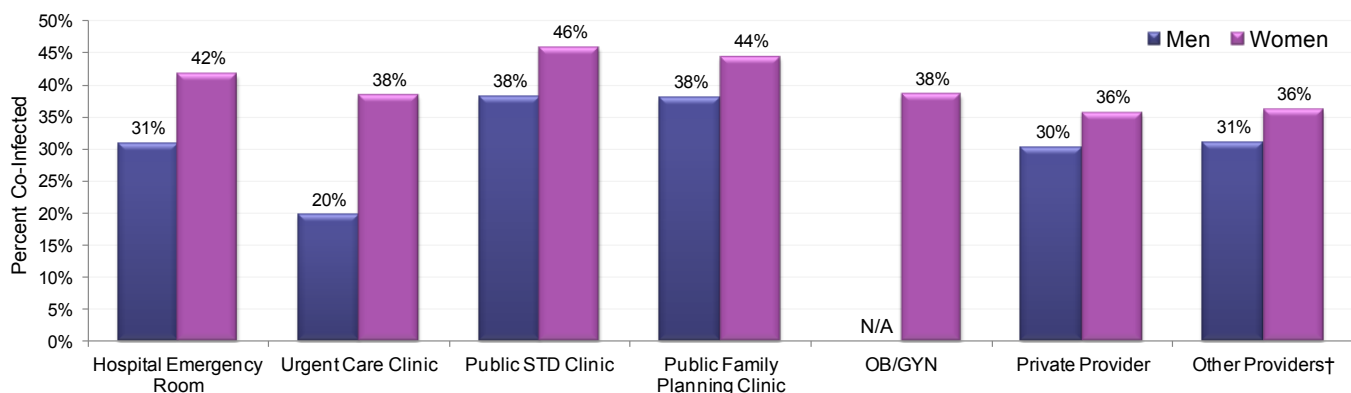
SSuN has two main components: STD clinic surveillance and *Neisseria gonorrhea* (NG) population surveillance. The former involves collecting enhanced information on patients presenting to STD clinics, while the latter involves interviewing patients diagnosed with gonorrhea in the general population. The data captured as part of SSuN include information not only on STD diagnoses, but also on patient demographics, disease symptoms, treatment, and high-risk behaviors.

Twelve sites across the United States now participate in these enhanced surveillance activities, including 43 STD clinics in 116 counties. Nationally, SSuN captures information on approximately 20% of all gonorrhea cases diagnosed annually.

In Virginia, four localities participate in the SSuN project: Richmond City, Chesterfield County, and Henrico County have participated since 2006, while Alexandria City started participation in late 2012. Enhanced surveillance data is captured for approximately 6,000 STD clinic visits and over 1,000 cases of gonorrhea each year in Virginia.

chlamydia. Thirty-one percent of men and 42% of women diagnosed at hospital emergency rooms were co-infected, as were roughly one-third of patients diagnosed by private providers. Men diagnosed at urgent care clinics were the least likely to be concurrently diagnosed with chlamydia (20%).

Figure 3. Percent of Gonorrhea Cases Co-Infected with Chlamydia by Provider Type\*



\* Cases with unknown provider type excluded (N = 96)

† May include school clinics, jails/prisons, other non-public medical clinics, etc